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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,372	09/25/2003	Jan WIGREN	07589.0056.NPUS01	2371
28694	7590	12/14/2005		EXAMINER
NOVAK DRUCE & QUIGG, LLP				MCNEIL, JENNIFER C
1300 EYE STREET NW			ART UNIT	PAPER NUMBER
400 EAST TOWER				1775
WASHINGTON, DC 20005				

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/605,372	WIGREN ET AL.
	Examiner	Art Unit
	Jennifer C. McNeil	1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 26 February 2004.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-26 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)



- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

Claims 12, 15, and 18 are objected to because of the following informalities:

Claim 12, line 10 refers to “sub(2).

Claim 15, line 1 refers to “com”.

Claim 18, line 1 refers to “com”.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's disclosure does not appear to teach any other microstructural difference other than porosity, which imparts the differences in thermal conductivity and strength. Therefore, applicant is only enabled for a microstructure that is different in porosity. The independent claims should reflect that the porosity is the microstructural difference.

Regarding claim 18, it is not clear what HOSP treatment entails. The specification states that the process is well known, but the examiner is not familiar with the method. Please clarify.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11, 17, and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11 and 17 refer to the TBC further comprising an agglomerate with a melted shell.

From the specification, it appears that the first layer is deposited with the entire material melted.

Please clarify.

Claim 23 uses the phrase "preferably". This is not considered to further limit the range of 0.5-5 microns. If applicant wants the limitation considered, the limitation must be in a separate claim.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-20, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Beltran et al (EP 0605196). Beltran teaches a thermal barrier coating for a metal substrate comprising a first zirconia layer and a second zirconia layer, wherein the first layer has substantially zero porosity and the second layer has 10-20 % porosity. Regarding claims 8 and 9, the method by which the coating is formed is not considered a structural limitation. Regarding claim 10, a bond coat may be provided between the substrate and the first layer. Regarding claims 11, 15, 17, and 18, Beltran teaches deposition via air or vacuum plasma, or HVOF. These methods are commensurate

with those claimed, and heat the particles during deposition, which results in melting the agglomeration and melting of the particles.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beltran et al (EP 0605196) in view of Alperine et al (US 6,333,118). Beltran teaches a thermal barrier coating as discussed above, but does not teach additional oxides which may be used to stabilize the zirconia. Alperine teaches a thermal barrier coating wherein the zirconia is stabilized with dysprosia. It would have been obvious to one of ordinary skill in the art at the time of the invention to stabilize the zirconia of the thermal barrier layer of Beltran with dysprosia, as Alperine clearly teaches that it successfully stabilizes the zirconia and is effectively used as a thermal barrier coating. Furthermore, Alperine shows the dysprosia as a direct alternative to yttria, which is used by Beltran. Alperine teaches an added advantage of reduced thermal conductivity with use of dysprosia.

Claims 11, 15, 22, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beltran et al (EP 0605196) in view of Strutt et al (US 6,27,448). Beltran teaches a thermal barrier coating as discussed above, and also teaches deposition via plasma spray. Beltran does not specify the size of grains of zirconia or agglomerates thereof. Strutt teaches deposition of zirconia onto a

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bond coat via plasma spray and shows how the particles are agglomerated and also teaches that the conventional powders have agglomerates in the size of 5-25 microns, and grain sizes of 0.5-1 microns. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the coating of Beltran by the disclosed method of thermal spray by using the grain and agglomerate size of Strutt as it is clearly disclosed by Strutt as being conventional.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C. McNeil whose telephone number is 571-272-1540. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer C McNeil  
Primary Examiner  
Art Unit 1775

JCM